

Laser Systems



MCO 25plus and MCO 50plus

ALL ESSENTIAL PARAMETERS
CONSTANTLY IN FOCUS

“All essential parameters constantly in focus”

The CO₂ laser is the classic medical laser. It has been used in numerous surgical fields with great success for many years. With the new CO₂ lasers MCO 25plus and MCO 50plus, KLS Martin offers state-of-the-art, cutting-edge laser technology. Whether you consider its uncomplicated operating philosophy, its excellent optical properties or the comprehensive, innovative range of accessories – the MCO25/50plus gives you lots of reasons to decide in favor of a KLS Martin CO₂ laser.

14 good reasons that make a truly convincing case:

- Novel, futuristic design
- Quick Tip panel for easy and time-saving parameter selection
- Easy-moving beam delivery system with excellent beam characteristics
- Safe locking of the articulated (mirror-joint) arm in two different positions
- Versatile, user-oriented operating modes such as ultra-short single pulses, superpulse mode and cycle mode
- Reliable beam guidance with minimal spot sizes and high power densities
- Microprocessor control
- Five program storage locations for saving user-defined parameter sets
- Integrated, programmable “Soft Scan plus R” scanner for multi-disciplinary use in conjunction with different handpieces and micromanipulators
- Special LineScan function for robotic vocal cord surgery
- Micro scan patterns for laser-assisted stapedial surgery
- Micromanipulator Micro Point with minimal spot size of 0.10 mm and highest power densities
- Possibility to select and turn scan patterns directly via the Micro Point micromanipulator
- Comprehensive range of accessories for numerous medical fields (ENT, gynecology, dermatology, etc.)



Otorhinolaryngology
Gynecology
Dermatology
Aesthetic surgery
General surgery
Proctology
Neurosurgery

Quick-Tip Panel

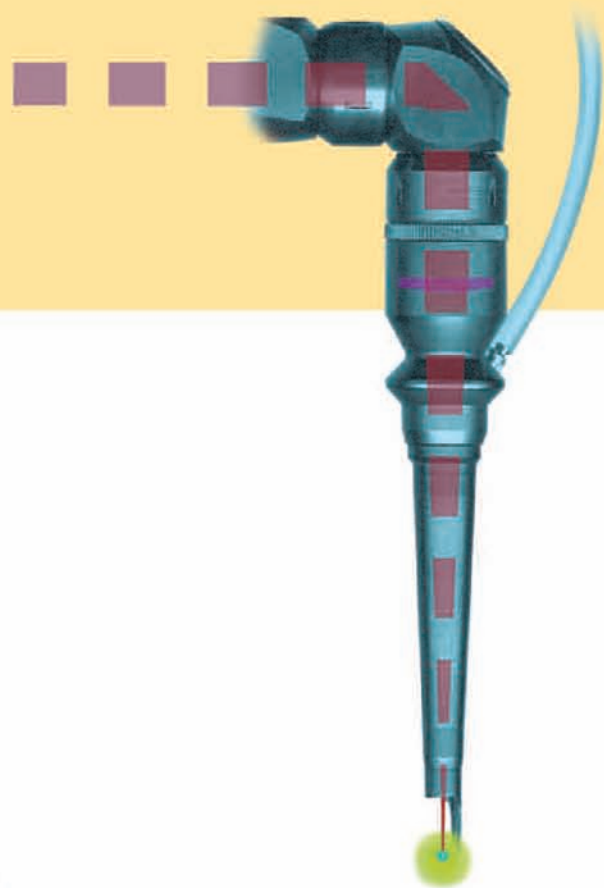
“Take your seat in the cockpit”

Straightforward operating interface, uncomplicated operating philosophy – properties that any user appreciates. The Quick-Tip panel guarantees easy and fast parameter selection. Only the parameters relevant to the operating mode used are automatically displayed at a time – the essentials in focus!



Five program storage locations, enabling you to save your own sets of parameters



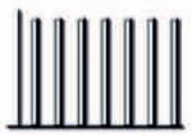


Versatile, user-oriented operating modes

Utmost precision with minimal thermal stress



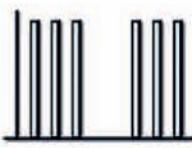
Pulse train



Superpulse mode



Single pulse



Cycle mode



Pulse train



Single pulse



Superpulse

“As little as possible, as much as necessary”

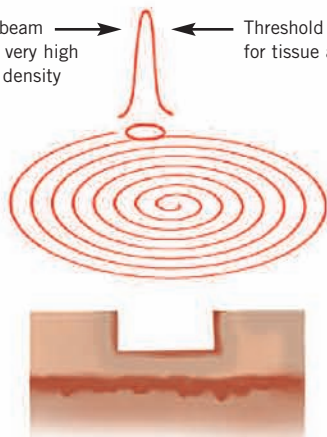
The digital scanner system SoftScan plus R comes as an integrated part of the laser unit. It offers controlled, reproducible tissue ablation for use in numerous surgical fields – gentle, tissue-sparing laser application for the benefit of the patient.



Integrated, multidisciplinary scanner “SoftScan plus R”

for controlled, superficial tissue vaporization in general and aesthetic surgery. Different handpieces and micromanipulators are available for easy handling. The tissue ablation rate can be controlled via different scanning speeds.

Laser beam with a very high power density → Threshold for tissue ablation



Tissue ablation effect



“Unbeatable Variability”

The Micro Point and Mini Point micromanipulators enable you to use the system with all commonly available operating microscopes. Together with the CO₂ laser systems, they constitute the “power pack” for microsurgery – offering extremely high power densities with minimal spot sizes.



76-400-00

“Mini Point” micromanipulator for gynecology, proctology
Adapters available for connecting operating microscopes and
colposcopes from different manufacturers (see page 11)



76-401-00

“Micro Point” micromanipulator for ENT, neurosurgery
(Separate brochure 90-853-02 available on request!)
Adapters available for connecting operating microscopes and
colposcopes from different manufacturers (see page 11)

“Precision at the highest level”

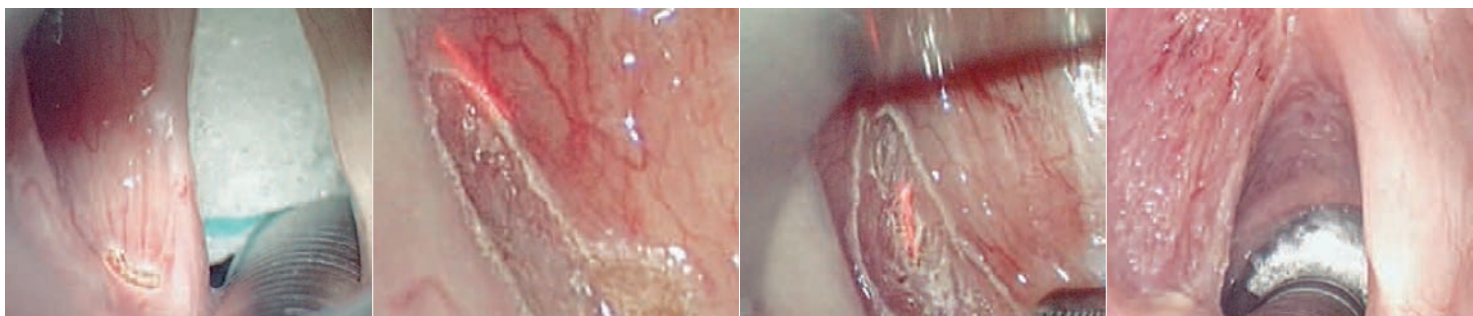
MCO 25plus and MCO 50plus with scanner system SoftScan plus R and micromanipulator Micro Point R – the highly sophisticated laser system for robotic microsurgery in laryngeal surgery.



76-411-00
Micromanipulator “Micro Point R”
including Micro Switch for selecting
and rotating scan patterns



Corpectomy with LineScan function



(With kind support from the Istituto Europeo di Oncologia, Milan, Italy. F. Chiesa, M. Ansarin / ENT)

Ordering Data

KLS Martin CO₂ Laser MCO 25plus

consisting of basic unit (25 W),
articulated (mirror-joint) arm,
127-mm standard focusing handpiece,
power cord, foot switch 77-025-01

KLS Martin CO₂ Laser MCO 25plus

with integrated scanner
(standard accessories same as 77-025-01) 77-025-11

KLS Martin CO₂ Laser MCO 50plus

consisting of basic unit (50 W),
articulated (mirror-joint) arm,
127-mm standard focusing handpiece,
power cord, foot switch 77-050-01

KLS Martin CO₂ Laser MCO 50plus

with integrated scanner
(standard accessories same as 77-050-01) 77-050-11

General accessories

Focusing handpiece, 50 mm
(complete, incl. detachable tip) 76-100-05

Tip, detachable,
for 50-mm focusing handpiece 76-100-06

Focusing handpiece, 127 mm
(complete, incl. detachable tip) 76-100-10

Tip, detachable,
for 127-mm focusing handpiece 76-100-11

Focusing handpiece, 200 mm
(complete, incl. detachable tip) 76-100-15

Tip, detachable,
for 200-mm focusing handpiece 76-100-16

Backstop for 127-mm
focusing handpiece 76-100-20

Backstop for 200-mm
focusing handpiece 76-100-25

90° angled working part
for 127-mm focusing handpiece 76-200-05

120° angled working part
for 127-mm focusing handpiece 76-200-10

Adapter for angled working parts
for 200-mm focusing handpiece 76-200-15

CO₂ laser protective goggles¹ 76-100-50

CO₂ laser protective goggles
for spectacle wearers² 76-100-51

Combined CO₂ and Nd:YAG
laser protective goggles³ 79-100-50

Combined CO₂ and Nd:YAG laser protective
goggles for spectacle wearers⁴ 79-100-51

All laser units are available with or without scanner.

Ordering Data

Micromanipulators

"Mini Point" micromanipulator
(gynecology, proctology) 76-400-00

Adapter, Zeiss system, for Mini Point 76-400-10

Adapter, Kaps system, for Mini Point 76-400-11

Adapter, Möller-Wedel system, for Mini Point 76-400-12

Adapter, Leica system, for Mini Point 76-400-13

Adapter, Zeiss OPMI FC 1, for Mini Point 76-400-14

Adapter, Möller-Wedel VM 500, for Mini Point 76-400-15

(other adapters available on request)

"Micro Point" micromanipulator
(ENT, neurosurgery)⁵ 76-401-00

"Micro Point R" micromanipulator (incl. Micro Switch)
(ENT, neurosurgery)⁵ 76-411-00

Adapter, Möller-Wedel VM 900, for Micro Point 76-401-03

Adapter, Leica M 650/651/655 systems, for Micro Point
(other adapters available on request) 76-401-01

Micro Switch for micromanipulator

Micro Point in connection with LineScan 76-401-30

Scanner

"SoftScan plus R" scanner retrofit kit
for MCO 25plus 76-500-01

"SoftScan plus R" scanner retrofit kit
for MCO 50plus 76-500-02

The retrofit kits (complete) include:

- scanner head, complete - 76-500-31

- scanner connecting cable - 76-500-40

- scanner handpiece, 127 mm
(complete, incl. tip) - 76-500-50

- scanner handpiece, 200 mm
(complete, incl. tip) - 76-500-60

- incl. all technical components

Adapter for connecting "SoftScan plus R"
to "Mini Point" 76-500-41

Adapter for connecting "SoftScan plus R"
to "Micro Point" 76-500-42

Tip for 127-mm handpiece 76-500-51

Tip for 200-mm handpiece 76-500-61

Special accessories

Special optics set for nasal operations,
consisting of: 76-600-00

- optics - 76-600-01

- 0-degree attachment for optics - 76-600-02

- 90-degree attachment for optics - 76-600-03

- 120-degree attachment for optics - 76-600-04

- brush for attachments - 76-600-05

¹ D 9000–10600 L5 RH DIN CE acc. to 89/686/EEC (PPE)

² D 9000–11000 L4 RH DIN CE acc. to 89/686/EEC (PPE)

³ D 1060 L6 RH DIN CE acc. to 89/686/EEC (PPE) /
DI 10600 nm L4 RH DIN CE

⁴ D 1060 L7 RH DIN CE acc. to 89/686/EEC (PPE) /
DI 10600 nm L3 RH DIN CE

⁵ ZEISS adapter inclusive

Handpieces and Attachments



76-100-05
Focusing handpiece, 50 mm, complete (for dermatology and aesthetic surgery)



76-100-06



76-100-10*
Focusing handpiece, 127 mm, complete (standard handpiece)



76-100-11



76-100-15
Focusing handpiece, 200 mm, complete (for ENT/pharyngeal surgery)



76-100-16



76-500-50**
Scanner handpiece, 127 mm, complete (for dermatology and aesthetic surgery)



76-500-51



76-500-60**
Scanner handpiece, 200 mm, complete (for dermatology and aesthetic surgery)



76-500-61



76-500-31**
"SoftScan plus R" scanner box (w/o handpiece)



76-500-41
Mini Point connector



76-500-42
Micro Point connector

* included in Laser package

** included in Laser with Scanner package



76-100-20
Backstop for 127-mm focusing handpiece
(for ENT/pharyngeal surgery)



76-100-25
Backstop for 200-mm focusing handpiece
(for ENT/pharyngeal surgery)



76-200-15
Adapter for angled working parts
for 200-mm focusing handpiece



76-200-05
90° angled working part,
for 127-mm focusing handpiece
and 200-mm focusing handpiece
(in conjunction with adapter 76-200-15)



76-200-10
120° angled working part,
for 127-mm focusing handpiece
and 200-mm focusing handpiece
(in conjunction with adapter 76-200-15)

76-600-00 Special optics set for nasal operations, consisting of:



76-600-01
ENT optics

76-600-04
120° attachment for ENT optics



76-600-03
90-degree attachment for ENT optics



76-600-02
0-degree attachment for ENT optics



76-600-05
Brush for ENT attachments

Dental tip available on request

Technical Specifications

Technical Data – MCO 25plus

Type of laser	MCO 25plus
Wavelength	10.6 μm , infrared
Laser power (applied to tissue)	2–25 W
CO ₂ laser tube	sealed off DC-excited
Operating modes:	
continuous-wave (CW)	2–25 W
superpulse	0.3 ms; 11 W, average, max. power
single pulse	5 ms – 10 s output power: 10–25 W
pulse train	minimum pulse length: 5 ms average output power: < 0.1 – 25 W
cyclically repeated pulses	cycle length: - permanent - 10 ms – 10 s
Pilot laser light	Diode laser, continuously adjustable 635 nm, 2 mW light-red
Laser beam delivery	Articulated spring arm with 7 joints/mirrors, arm length = 1,300 mm, handpiece exchangeable
Focus diameter	- 0.15 mm with a focal distance of 50 mm (spot size) - 0.20 mm with the standard focal distance of 127 mm - 0.30 mm with a focal distance of 200 mm
Operator/control panel	Bluemode LCD (liquid crystal display) with illuminated buttons featuring symbols, keypad sealed, with integrated scanner functions
Program memory	5 freely assignable memory locations (can be used for scanner as well)
Cooling	internal
Power requirements	230 V / 4 A 50 / 60 Hz
Protection class	I
Type (of applied part)	B
Laser class	4
Dimensions	290 x 450 x 1,950 mm (height with articulated arm folded down: 1,180 mm)
Weight	57 kg



Technical Data – MCO 50plus

Type of laser	MCO 50plus
Wavelength	10.6 μm , infrared
Laser power (applied to tissue)	2–50 W
CO ₂ laser tube	sealed off DC-excited
Operating modes:	
continuous-wave (CW)	7–50 W
superpulse	0.3 ms; 13 W, average, max. power
single pulse	10 ms – 10 s output power: 10–50 W
pulse train	minimum pulse length: 8 ms average output power: <0.1 – 50 W
cyclically repeated pulses	cycle length: - permanent - 10 ms – 10 s
Pilot laser light	Diode laser, continuously adjustable 635 nm, 2 mW light-red
Laser beam delivery	Articulated spring arm with 7 joints/mirrors, arm length = 1,300 mm, handpiece exchangeable
Focus diameter	- 0.15 mm with a focal distance of 50 mm (spot size) - 0.20 mm with the standard focal distance of 127 mm - 0.30 mm with a focal distance of 200 mm
Operator/control panel	Bluemode LCD (liquid crystal display) with illuminated buttons featuring symbols, keypad sealed, with integrated scanner functions
Program memory	5 freely assignable memory locations (can be used for scanner as well)
Cooling	internal
Power requirements	230 V / 4 A 50 / 60 Hz
Protection class	I
Type (of applied part)	B
Laser class	4
Dimensions	290 x 450 x 2,170 mm (height with articulated arm folded down: 1,630 mm)
Weight	62 kg



Technical Specifications



Technical Data – Optional Accessories

“Mini Point” micromanipulator

Zoom range continuously adjustable between 200 and 400 mm

Focal length	200 mm	250 mm	300 mm	350 mm	400 mm
Spot diameter	0.36 mm	0.47 mm	0.56 mm	0.65 mm	0.76 mm
Power density (with 25 W)	24.5 kW/cm ²	14.5 kW/cm ²	10.2 kW/cm ²	7.5 kW/cm ²	5.5 kW/cm ²

“Micro Point” micromanipulator

Zoom range continuously adjustable between 200 and 400 mm

Focal length	200 mm	250 mm	300 mm	350 mm	400 mm
Spot diameter	0.1 mm	0.12 mm	0.125 mm	0.13 mm	0.15 mm
Power density (with 25 W)	318.3 kW/cm ²	221 kW/cm ²	204 kW/cm ²	188 kW/cm ²	141 kW/cm ²

“SoftScan plus R” scanner

6 different scan patterns in different sizes and positions for tissue vaporization

3 different line patterns with variable length for robotic tissue resection

Electronically rotatable micro scan patterns ranging from 0.4 mm to 2.0 mm, especially for otology

Rotation via micromanipulator Micro Point R

Operating/control functions integrated into the laser unit's display screen

Irradiation time per treatment spot (depending on selected parameters) 0.15–1.2 ms

Scan pattern representation with pilot laser during treatment pauses as well

Power densities with 127-mm handpiece: MCO 25plus: max. 24 J/cm²

MCO 50plus: max. 48 J/cm²

Innovative Laser Systems from KLS Martin

For further information on our laser units, please contact:

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Nd:YAG lasers MY 60 and MY 40



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